

## REMARKS/ARGUMENTS

Applicants acknowledge receipt of the Office Action dated September 5, 2008.

### **Status of the Claims:**

Claims 11, 113-119 are currently amended.

Claims 5, 17 were canceled via previous amendment.

Claims 78-111 were canceled without prejudice. Applicants retain the right to pursue the subject matter of claims 78-111 at a later time in a continuing application.

As such, claims 1-4, 6-16, 18-77 and 112-119 are pending in this application.

Claims 1, 14, 37, 51, 66, and 112 are independent claims from which the rest of the pending claims depend. Applicants believe all pending claims are allowable over the art of record and respectfully request reconsideration and allowance of all claims.

### **I. Claim Objections**

Claims 11, 113-119 are amended according to item 2 on page 2 of the Office Action. All the claims are believed to be in proper formality for allowance.

### **II. Claim Rejections Under 35 U.S.C. §103(a)**

1. Regarding claims 1-4, 7, and 51, in paragraph 3 on page 3, the Office Action states that “Johnson ‘124 does not disclose the claimed Group VIII metal and second metal concentrations. It would have been obvious to have utilized such metal components in the amounts as taught by Ryu ‘588 to result in an effective catalyst in Johnson because it is known and evidenced by Ryu ‘588 the claimed amounts are effective”. Applicants respectfully traverse for at least the following reasons:

(1) Ryu ‘588 teaches an invention that “includes a catalyst comprising a copper component containing from about 0.1 to 25 wt percent Cu, preferably 0.2 to 20 wt%; a palladium promoter in a range of 0 to 2 wt %, preferably 0 to 1 wt%; a silver or gold modifier is in a range of 0 to 15 wt%, preferably 0 to 10 wt%; and a zinc oxide modifier is in a range of 0 to 25 wt%, preferably from 0 to about 15 wt%” (col. 2, lines 51-57). Furthermore, Ryu ‘588 states that “[b]y alloying copper with palladium, the chemical nature of the copper-palladium catalyst is changed from the traditional

palladium or palladium-silver catalysts" (col. 4, lines 21-24). However, Johnson '124 teaches a catalyst "comprising palladium and silver" (see abstract and claims of Johnson '124). It is clear that the teachings of Ryu '588 and Johnson '124 cannot be combined because they deal with two categories of catalysts that are completely different – Johnson '124 that of palladium-silver catalysts whereas Ryu '588 that of palladium-promoted copper catalysts.

(2) The Office Action pointed to col. 8, lines 12-25 of Ryu '588, where palladium loading on the copper catalyst is desirably  $> 0.15$  wt%. Again, the palladium content disclosed is in the context of palladium-promoted copper catalysts. There is no logical way for one of ordinary skill in the art to apply this palladium content to palladium-silver catalysts disclosed in Johnson '124. The same reason stands for the examples in Ryu '588. Therefore, it is not obvious but rather illogical for one of ordinary skill in the art at the time of invention to "have utilized such metal components in the amounts as taught by Ryu '588".

(3) Ryu '588 also says that "[a]lthough it is not known how this additional benefit of the copper catalysts promoted with Pd occur, it may be that unsaturated precursors to polymeric materials are more effectively hydrogenated resulting in slower or little deposition of polymeric material on the copper catalyst" (col. 4, lines 55-60). This further discourages one of ordinary skill in the art to apply the teachings of Ryu '588 concerning palladium content to palladium-silver catalysts taught by Johnson '124 because (a) "this additional benefit" is seen for "the copper catalysts promoted with Pd", which are distinguished in their chemical nature from traditional palladium-silver catalysts and (b) there would be no expectation of success if one were to illogically apply the palladium content taught by Ryu '588 to palladium-silver catalysts taught by Johnson '124.

In a nutshell, it would not have been reasonable for one of ordinary skill in the art at the time of invention to combine the teachings of Johnson '124 and the teachings of Ryu '588.

2. Regarding claims 1-4, 7, and 51, in paragraph 4 on page 3, the Office Action states that "[i]t is considered the catalyst disclosed by Johnson would obviously be capable of performing the same because both the disclosed catalyst and the claimed catalyst contain the same metal components and having the same composition". Applicants respectfully traverse for at least the following reason:

Johnson '124 discloses a catalyst "consisting essentially of particles of alpha alumina containing metallic components consisting essentially of palladium and silver wherein the palladium is about 0.01 to about 0.025 weight percent of the catalyst, the weight percent silver is at least twice that of the palladium" (claim 1, also see Abstract; col. 2, lines 21-24; col. 3, lines 6-7 and lines 31-32; Example I). In contrast, the present application discloses a catalyst "consisting essentially of: a precursor comprising at least one Group VIII metal disposed on an inorganic support; and a second metal selected from the group consisting of silver, gold, zinc, Group IIIA metals, Group VIIB metals, and combinations thereof, disposed on the precursor; wherein the catalyst comprises between 0.1 and 10 weight % Group VIII metal" (claim 1). The most similar catalyst of the present application to that of Johnson '124 is essentially palladium-silver on alumina with a palladium content between 0.1 and 10 weight %, which is different from the catalyst composition disclosed in Johnson '124 with a palladium content of about 0.01 to about 0.025 weight percent.

Therefore, it is clearly shown that catalysts disclosed in Johnson '124 and the present application do not contain the same metal components except for palladium-silver catalysts. In the case of palladium-silver catalysts, the composition of the present application is different from that of Johnson '124 because the palladium content is in a completely different range.

3. Regarding claims 6, 8-16, 18-50, 52-77, and 112-119, in paragraph 1 on page 4, the Office Action states that "Johnson does not disclose the second metal component being zinc, Group VIIB or Mn, Group III metals or In, Ga, etc. as recited in the above listed claims. However, it would have been *prima facie obvious* to one of ordinary skill in the art at the time the invention was made to have incorporated these known active metal components into the catalyst of Johnson in order to achieve an improved and effective catalyst material because they are known as useful catalytic metals, as evidenced by Ryu '588 (see Ryu '588 at col. 18, claim 7)". Applicants respectfully traverse for at least the following reasons:

(1) It is neither logical nor reasonable for one of ordinary skill in the art at the time of invention to combine the teachings of Johnson '124 and the teachings of Ryu '588. As discussed earlier in detail, the reasons are (a) Johnson '124 and Ryu '588 deal with two categories of catalysts that are completely different – Johnson '124 that of palladium-silver and Ryu '588 that of

palladium-promoted copper catalysts; (b) there is no logical way for one of ordinary skill in the art to apply the content of palladium loaded on copper catalysts disclosed in Ryu '588 to the palladium-silver catalysts disclosed in Johnson '124; and (c) Ryu indicated that the superior performance of the copper-palladium catalysts lies in the change of the chemical nature caused by alloying copper with palladium, therefore there is no reason for one of ordinary skill in the art to apply the teachings of Ryu '588 to palladium-silver catalysts disclosed in Johnson '124.

(2) The Office Action pointed to claim 7 in Ryu '588, "[t]he catalyst according to claim 2, 3, 4 or 5 further comprising a Zn component". If this were to be applied to the palladium-silver catalyst disclosed in Johnson '124 out of the context of Ryu '588, the resulting catalyst would have been a catalyst with a palladium content in the range of 0.01 weight percent to 0.025 weight percent, which is different from the catalyst composition of independent claims 1, 14, 37, 51, 66, and 112 in the present application, wherein the palladium content is limited by between 0.1 and 10 weight % Group VIII metal. Furthermore, one of ordinary skill in the art, upon reading Johnson '124 would not expect to produce a hydrogenation catalyst having the selectivities and/or once-through conversions disclosed in the instant independent claims by combining the teachings of Ryu '588 with those of Johnson.

(3) It is well known and commonly acknowledged by those skilled in the art that the catalytic arts are inherently unpredictable. In such cases:

Consider the predictability of the technology. See, e.g., *Dillon*, 919 F.2d at 692-97, 16 USPQ2d at 1901-05; *In re Grabiak*, 769 F.2d 729, 732-33, 226 USPQ 870, 872 (Fed. Cir. 1985). If the technology is unpredictable, it is less likely that structurally similar species will render a claimed species obvious because it may not be reasonable to infer that they would share similar properties. See, e.g., *In re May*, 574 F.2d 1082, 1094, 197 USPQ 601, 611 (CCPA 1978) (prima facie obviousness of claimed analgesic compound based on structurally similar prior art isomer was rebutted with evidence demonstrating that analgesia and addiction properties could not be reliably predicted on the basis of chemical structure); *In re Schechter*, 205 F.2d 185, 191, 98 USPQ 144, 150 (CCPA 1953) (unpredictability in the insecticide field, with homologs, isomers and analogs of known effective insecticides having proven ineffective as insecticides, was considered as a factor weighing against a conclusion of obviousness of the claimed compounds).

MPEP 2144.08 (2008). Therefore, one of ordinary skill in the art cannot reasonably expect to obtain a hydrogenation catalyst, by mere incorporation of known active metal components, having the selectivities and/or once-through conversions disclosed in the instant independent claims.

In conclusion: (1) it would have been illogical and unreasonable for one of ordinary skill in the art to combine the cited references at the time of invention; (2) the combination of cited references would not have led to the catalyst or process of the present application; (3) there would have been no reasonable expectation of success that combining the cited references would produce the claimed catalysts. Accordingly, Applicants respectfully request that the 35 U.S.C. §103(a) rejections be withdrawn.

### **III. Summary**

Regarding claims 1-4, 6-16, 18-77, and 112-119, the obviousness rejections have no valid foundation for at least the following reasons:

First of all, it would have been illogical and unreasonable for one of ordinary skill in the art to combine cited references (Johnson '124 and Ryu '588) at the time of invention, as discussed earlier in detail. Secondly, in the case of an illogical combination of cited references, resulting teachings do not lead to catalyst or process as disclosed in independent claims 1, 14, 37, 51, 66, and 112. Thirdly, there is no expectation of success for a hydrogenation catalyst having the selectivities and/or once-through conversions disclosed in the instant independent claims.

Claim 1 is an independent claim from which claims 6 and 8-13 depend; claim 14 is an independent claim from which claims 15-16 and 18-36 depend; claim 37, is an independent claim from which claims 38-50 depend; claim 51 is an independent claim from which claims 52-65 depend; claim 66 is an independent claim from which claims 67-77 depend; and claim 112 is an independent claim from which claims 113-119 depend.

Therefore, it is respectfully requested that the 35 U.S.C. §103(a) rejections to claims 1-4, 6-16, 18-77, and 112-119 be removed, and the claims allowed.

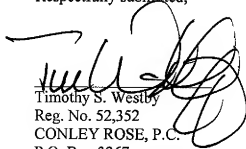
### CONCLUSION

Applicants respectfully request reconsideration and allowance of the pending claims and a timely Notice of Allowance be issued in this case. If the Examiner feels that a telephone conference would expedite the resolution of this case, the Examiner is respectfully requested to contact the undersigned.

In the course of the foregoing discussions, Applicants may have at times referred to claim limitations in shorthand fashion, or may have focused on a particular claim element. This discussion should not be interpreted to mean that the other limitations can be ignored or dismissed. The claims must be viewed as a whole, and each limitation of the claims must be considered when determining the patentability of the claims. Moreover, it should be understood that there may be other distinctions between the claims and the prior art that have yet to be raised, but which may be raised in the future.

If any fees are inadvertently omitted or if any additional fees are required or have been overpaid, please appropriately charge or credit those fees to Conley Rose, P.C. Deposit Account Number 03-2769.

Respectfully submitted,



Timothy S. Westby  
Reg. No. 52,352  
CONLEY ROSE, P.C.  
P.O. Box 3267  
Houston, Texas 77253-3267  
(713) 238-8000  
ATTORNEY FOR APPLICANTS